Report Prepared By:Crawlspace Remediation, LLC
Project Name:WL City Hall Magna-Dry
Report Date: 02/04/2014
Lab Number: E59351

Mold Inspection Report

Performed By Samuel Goode, CMI

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Project: WL City Hall Magna-Dry
Report Date: 2/05/2014
Sampled: 1/31/2014
Analyzed: 2/04/2014
Lab#: E52651
Testing Analysis Performed and Prepared by:

IMS Laboratory

AIHA LAP, LLC
ACCREDITED LABORATORY
ENVIRONMENTAL MICROBIOLOGY
ISO/IEC 17025:2005
LAB # 172958

Table of Contents

1. Historical Brief

On January 31st our office was contacted by Brian Wiegers of Magna-Dry. During that conversation it was disclosed that he was performing a flood remediation on the West Lafayette City Hall building and had some concerns about potential microbial activity. An appointment was set for that afternoon to discuss further testing procedures at the City Hall building.

Upon arrival it was noted that Magna-Dry was using a considerable of drying equipment including dehumidifiers, turbofans, and HEPA charcoal filters for air scrubbing. It was discussed that a back door had been blown open and allowed unusually cold temperatures into the building. This caused a water line to burst on the third floor of the building. It was disclosed that upon arrival of Magna-Dry the entire basement was filled with approximately two inches of standing water and the council room on the main floor was wet, but not necessarily flooded.

During the remediation procedure is was noticed by a Magna-Dry employee while drilling weep holes in the dry wall in the basement area that an unusual amount of what appeared to be mold was present behind wall paper. Mr. Wiegers also stated at a later date that some of these areas due to the surrounding materials, i.e. drywall, wall paper, and concrete, is very difficult to dry.

This inspector was taken to the basement area first and shown a small back room where drywall had been removed. A organic growth black in color was obviously present. No odor or smell was observed. This area was by far the area of most concern. The rest of the building areas seemed to be in relativity good condition.

It was determined that several samples should be taken including a sampling on each floor, and additional sampling in the back room of the basement, a direct contract swab of the exposed drywall, and a base line sampling outside.

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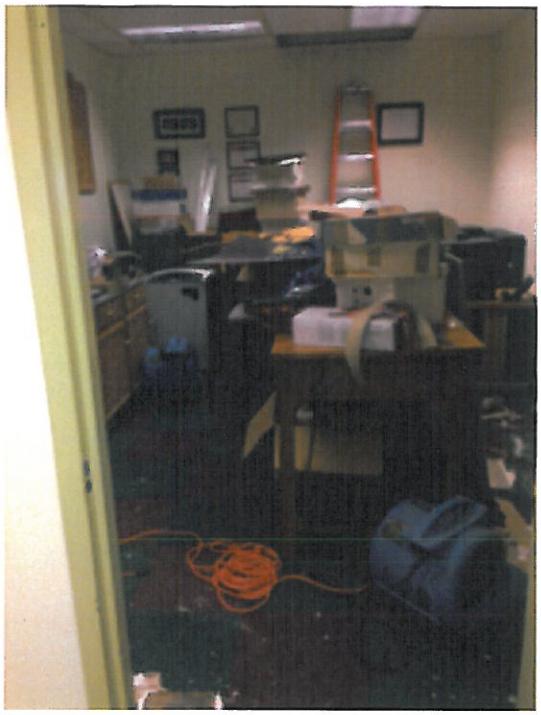
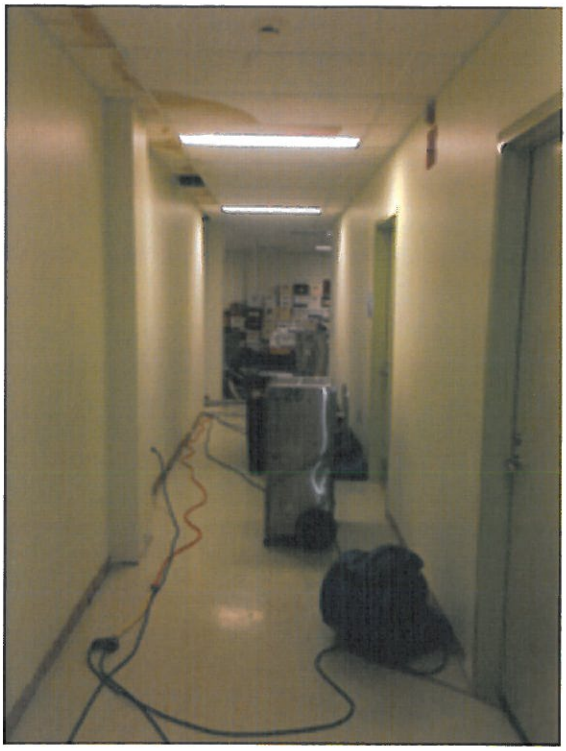


Overall view of small back room in basement. Area of main concern.

Area in small back room of basement. Direct sampling taken of drywall debris.



Basement Hall leading to small back room.

2. Description of Testing Methods

Topical Samples - Lift Tape Sampling: Lift tape samples are nonviable surface samples collected by carefully pressing cellophane tape onto a surface to lift surface contaminants and then placing the tape onto a laboratory microscope slide. The lift tape is analyzed by a mycologist at IMS Laboratory through direct microscopic examination. The mycologist then reports the mold spores observed on the surface of a material. This testing methodology is used to identify the types and relative proportions of mold on a surface.

Air Samples - Spore Trap Sampling: Nonviable spore trap cassette sampling impacts nonviable particles directly into a spore trap cassette at a predetermined flow rate and time. After the sampling period, the cassette is analyzed at IMS Laboratory through direct microscopic examination by a qualified mycologist. Because the analysis does not include culturing the fungi, the results include both viable and non-viable spores. Spore trap samples identify particles, pollen and fungal elements. High particulates in the air can result in underestimation of spore concentrations. This collection methodology is biased toward larger spore sizes. Because some fungal spores cannot be distinguished by direct microscopic examination (e.g. Penicillium and Aspergillus), these organisms are grouped into larger categories. Examples include the Pen/Asp group, Basidiospores, and Ascospores. Results from this methodology are reported as spores per cubic meter.

3. Laboratory Results

Location: Outdoor (Parking Lot)

Sample # E59351 - 1

Medium Type: Air-O-Cell
Serial # 20183156
Exposure: 15.00 l/min. for 5.00 min.
Reporting Limit: 53 Spores/cu. m

Sample Identification	Raw Count	Spores/cu. m	Percent(%)
- Fungi -			
Pen/Asp group	2	107	66.88%
Basidiospores	1	53	33.13%
TOTALS:	3	160	100.00%

Background Item	Level
Dust / Debris	Low
Opaque Particles	Very Low

Location: Council Room

Sample # E59351 - 2

Medium Type: Air-O-Cell
Serial # 20182790
Exposure: 15.00 l/min. for 5.00 min.
Reporting Limit: 53 Spores/cu. m

Sample Identification	Raw Count	Spores/cu. m	Percent(%)
- Fungi -			
Basidiospores	1	53	50.00%
Pen/Asp group	1	53	50.00%
TOTALS:	2	106	100.00%

Background Item	Level
Dust / Debris	Low
Opaque Particles	Low

Location: 2nd Floor Commons

Sample # E59351 - 3

Medium Type: Air-O-Cell
Serial # 20182796
Exposure: 15.00 l/min. for 5.00 min.
Reporting Limit: 53 Spores/cu. m

Sample Identification	Raw Count	Spores/cu. m	Percent(%)
- Fungi -			
Pen/Asp group	10	533	100.00%
TOTALS:	10	533	100.00%

Background Item	Level
Dust / Debris	Low
Opaque Particles	Very Low

Location: Basement Commons

Sample # E59351 - 4

Medium Type: Air-O-Cell
Serial # 20182710
Exposure: 15.00 l/min. for 5.00 min.
Reporting Limit: 53 Spores/cu. m

Sample Identification	Raw Count	Spores/cu. m	Percent(%)
- Fungi -			
Pen/Asp group	16	853	84.21%
Stachybotrys	2	107	10.56%
Basidiospores	1	53	5.23%
TOTALS:	19	1,010	100.00%

Background Item	Level
Dust / Debris	Low
Hyphal Fragments	Very Low
Opaque Particles	Very Low

Location: Basement Closet

Sample # E59351 - 5

Medium Type: Air-O-Cell
Serial # 20182706
Exposure: 15.00 l/min. for 5.00 min.
Reporting Limit: 53 Spores/cu. m

NOTE: Estimated raw count on Pen/Asp group.

Sample Identification	Raw Count	Spores/cu. m	Percent(%)
- Fungi -			
Pen/Asp group	1,730	92,300	99.08%
Stachybotrys	11	587	0.63%
Chaetomium	2	107	0.11%
Basidiospores	1	53	0.06%
Chaetomium	1	53	0.06%
Mitospores	1	53	0.06%
TOTALS:	1,746	93,200	100.00%

Background Item	Level
Dust / Debris	Medium
Hyphal Fragments	Very Low
Opaque Particles	Low

Location: Basement Closet Drywall

Sample # E59351 - 6

Medium Type: Swab - Direct Exam
Serial # SP130X

Sample Identification	Prevalence
- Fungi -	
Stachybotrys	Present on 26 - 50% of sample area.
Pen/Asp group	Present on 5 - 25% of sample area.
Chaetomium	Present on less than 5% of sample area.

Background Item	Level
Dust / Debris	Low
Hyphal Fragments	Medium

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Analytic Methods and Formulas:

IMS Analytical Method: 2.6 (method for analyzing abundant organisms (spc 10))

IMS Laboratory Analytical Method: 2.2 (method for analyzing spore trap)

Results are rounded to 3 significant figures per AIHA policy module 2A.2.10.6

Spores per cubic meter is determined by: Total Spore Count x 4 x (1000/sampling rate/sampling time))

Note that this report may use mold-specific units, such as Spores/cm² and CFU/cm, in for Sample Identifications such as pollen, fiberglass fibers, and bacteria, which are raw molds.

IMS Laboratory, LLC is accredited through the American Industrial Hygiene Association (AIHA) and participates in Environmental Microbiology Proficiency Testing, EMPAT #172958. Data is provided in compliance with AIHA policy modules and ISO 17025 guidelines

Analyst		Reviewer
Kathryn C Langley 02/04/2014	AIHA LAP, LLC ACCREDITED LABORATORY	02/04/2014
Kathryn C. Langley, Lab Analyst		Sarah Nelson, Lab Analyst

4. Understanding Laboratory Results

Laboratory findings must only be considered as part of an overall mold investigation. The interpretation of the findings must only be made by a qualified individual after reviewing all relevant data. Visual information and environmental conditions measured during the site assessment are crucial to final interpretation of the results. A very good reference book which covers sampling and data interpretation has

been published by The American Conference of Governmental and Industrial Hygienists and is entitled Bioaerosols: Assessment and Control, 1999.

Numerical guidelines cannot be used as the primary determinant as to whether a mold problem may exist. Concentrations of mold in the air will vary depending on weather conditions, building air flow, time of day and time of year. Comparisons between indoor and outdoor mold
levels, types of mold found, visual information and environmental conditions are more important in interpreting results than reliance on specific numeric thresholds.

In Indoor Air Quality in Office Buildings: A Technical Guide, Health Canada, Revised 1995 (Pages 49-50), Health Canada set forth guidelines which can be used to better understand air testing results. The guidelines included these general principles. Significant numbers of certain pathogenic fungi should not be present in indoor air (e.g. Aspergillus fumigatus, Histoplasma, and Cryptcoccus). Bird or bat droppings in air intakes, ducts or rooms should be assumed to contain these pathogens. The persistent presence of significant numbers of toxigenic fungi (e.g. Stachybotrys atra, toxigenic Aspergillus, Penicillium and Fusarium species) indicate that further investigation and action should be taken. The confirmed presence of one or more fungal species occurring as a significant percentage of a sample in indoor air samples and not similarly present in concurrent outdoor samples is evidence of a fungal amplifier. The "normal" air mycoflora is qualitatively similar and quantitatively lower than that of outdoor air. The significant presence of fungi in humidifiers and diffuser ducts and on moldy ceiling tiles and other surfaces requires investigation and remedial action regardless of the airborne mold concentrations.

Generally, mold spores are present everywhere. As a general rule, "normal" air mycoflora is qualitatively similar and quantitatively lower than that of outdoor air. When the converse is true, it is likely that an indoor source of mold may exist. However, even this most basic rule may produce misleading results. Airborne mold spore levels vary widely due to factors such as weather conditions and activity levels. For example, in a "normal" home, indoor mold spore levels may be elevated above outdoor spore levels after vacuuming (when airborne indoor levels could be unusually high) or after a heavy snow (when outdoor levels could be unusually low).

Surface Sampling primarily identifies the types and relative proportions of mold on a surface. Viable surface sampling will identify living mold, while nonviable surface sampling will identify all mold (but cannot distinguish between living or dead mold). Surface sampling may confirm that a substance is mold or identify the types of mold present on the surface. Because mold is everywhere, there is a high probability that a surface sample from a "clean" surface will still identify mold on that surface.

There are currently no state or federal standards or guidelines regarding results of fungal samples. There are no levels, which are typical or permissible. There are no

recommended exposure limits, no permissible exposure limits, no threshold limit values and no short term exposure limits.

These guidelines are not intended, nor should they be used, for health evaluation purposes or to evaluate the safety of an occupied space. A physician should be consulted regarding health and/or safety questions.

5. Sample Identification Definitions

Basidiospores
A large group of spores that are very ubiquitous in nature. They are released from mushrooms, shelf fungi, puffballs, and a variety of other macro fungi. Basidiospores may be allergenic to those with seasonal allergies.

Found in these Sample Locations: (1) Outdoor (Parking Lot) (2) Council Room (4) Basement Commons (5)Basement Closet

Chaetomium
A type of ascospore commonly isolated from soil. It is found on a variety of substrates including decomposing plant material and wood, dung, straw, and damp or water-damaged cellulose (e.g. paper on drywall). As a moisture-indicator fungi, Chaetomium only grows when the substrate has a current or previous severe moisture problem. There are over 100 documented species of Chaetomium, several of which are reported to be toxigenic; if not speciated, the genus Chaetomium should be assumed to be toxigenic. It has been known to cause systemic, cerebral, cutaneous, subcutaneous, and pulmonary infections, though usually only in the immunocompromised.
Found in these Sample Locations: (5) Basement Closet (6) Basement Closet Drywall

Cladosporium
One of the most commonly identified outdoor fungi. It is often found indoors in numbers less than outdoors. Cladosporium is also found on decaying plants and food, straw, paint, and textiles. It is generally regarded to be allergenic and can be a cause of extrinsic asthma (immediate type hypersensitivity: Type I). Cladosporium has been reported in cases of skin lesions, keratitis, onychomycosis, sinusitis, and pulmonary infections.
Found in these Sample Locations: (5) Basement Closet

Mitospores
A large group of morphologically-similar fungi which includes Alternaria, Stemphylium, Pithomyces, and Ulocladium. If hyphal fragments are not attached to the spores, the specific type of mitospore cannot be differentiated and is classified under this grouping. Because mitospores are large spores, they are more easily deposited in the nose, mouth, and upper respiratory tract, allowing them to be potentially very allergenic. Alternaria, Stemphylium, Pithomyces, and Ulocladium are all commonly found on plants, textiles, paper, and in soil. In building interiors,they are commonly isolated from horizontal surfaces (e.g. window sills, attic rafters). Alternaria is both a plant pathogen and human pathogen and is associated with asthma, hypersensitivity pneumonitis, sinusitis, deratomycosis, onychomycosis, subcutaneous phaeohyphomycosis, and invasive infection. Stemphylium is not a known human pathogen. Pithomyces is not a known human pathogen, but has been known to cause facial eczema on ruminants (e.g. cattle, goats, sheep). Ulocladium is generally not pathogenic, but has been known to cause cutaneous infections in the immunocompromised.
Found in these Sample Locations: (5) Basement Closet

Pen/Asp group
The spores of the genera Penicillium, Aspergillus, Gliocladium, and Trichoderma are quite similar when viewed under a microscope and are grouped together under the heading Pen/Asp. Penicillium species are among the most common fungi found in indoor environments, particularly basements. Certain species may cause infections of the eye, external ear, respiratory system, and urinary tract. Some species of Aspergillus

are parasitic on insects, plants, and animals including humans. All Aspergillus species are allergenic. Various species can cause extrinsic asthma, pulmonary emphysema, opportunistic infections of the ears and eyes, and severe pulmonary infections. Many species of Penicillium and Aspergillus produce mycotoxins which may be associated with diseases in humans and animals. Several toxins are considered potential human carcinogens. The genus Gliocladium has not been reported to cause disease in man or animals. The genus Trichoderma has been reported to cause infections in immunocompromised individuals, patients undergoing dialysis, and individuals with chronic kidney failure or chronic lung disease.
Found in these Sample Locations: (1) Outdoor (Parking Lot) (2) Council Room (3) 3rd Floor Commons (4) Basement Commons (5) Basement Closet (6) Basement Closet Drywall

Stachybotrys
A fungus naturally found on decaying plant and tree material. In the indoor environment, it grows on building material with a high cellulose and water content and a low nitrogen content (e.g. wet drywall). There are over 20 documented species of Stachybotrys, and at least two are reported to be toxigenic; if not speciated, the genus Stachybotrys should be assumed to be toxigenic. Specifically, it can produce the mycotoxin trichothecene (Satratoxin H), which is poisonous upon inhalation. Individuals with chronic exposure to the toxin produced by this fungus reported cold and flu symptoms, sore throats, diarrhea, headaches, fatigue, dermatitis, intermittent local hair loss, and general malaise. The toxin may suppress the immune system, affecting the lymphoid tissue and the bone marrow. It is also reported to be a liver and kidney carcinogen. Effects by absorption of the toxin in the human lung are known as pneumomycosis. Areas with relative humidity above 55% are subject to temperature fluctuations and are ideal for toxin production. Stachybotrys is rarely found in outdoor samples. It is usually difficult to find in indoor air samples unless it is physically disturbed.
Found in these Sample Locations: (4) Basement Commons (5) Basement Closet (6) Basement Closet Drywall

6 - Warranties, Legal Disclaimers, and Limitations From IMS

IMS's scope of accreditation through the AIHA is for the following FoT(s)/ Method(s): Fungal Air - Culturable (SOP 2.4 Cultured Air Sample Reporting); Fungal Bulk - Culturable (SOP 2.5); Fungal Surface - Culturable (SOP 2.5); Fungal Air - Direct

Examination (SOP 2.2 and 2.3); Fungal Bulk - Direct Examination (SOP 2.6); and Fungal Surface - Direct Examination (SOP 2.1).

The study and understanding of molds is a progressing science. Because different methods of sampling, collection and analysis exist within the indoor air quality industry, different inspectors or analysts may not always agree on the mold concentrations present in a given environment. Additionally, the airborne levels of mold change frequently and by large amounts due to many factors including activity levels, weather, air exchange rates (indoors), and disturbance of growth sites. It is possible for report interpretations and ranges of accuracy to vary since comprehensive, generally accepted industry standards do not currently exist for indoor air quality inspections of mold in residential indoor environments. This report is intended to provide an analysis based upon samples taken at the site at the time of the inspection. Mold levels can and do change rapidly, especially if home building materials or contents remain wet for more than 24 hours, or if they are wet frequently. This report is not intended to provide medical or healthcare advice. All allergy or medical-related questions and concerns, including health concerns relating to possible mold exposure, should be directed to a qualified physician. If this report indicates indoor mold levels that are higher than in typical indoor living spaces relative to the outdoor environment, or indicates any findings that are of concern to you, further evaluation by a trained mold professional or a Certified Industrial Hygienist (CIH) may be advisable.

Results pertain only to the items tested. Unless otherwise noted in the body of this report, the condition of samples upon receipt was acceptable. Blank samples are reported in the same manner as all other samples. The results are not corrected for contamination.

This report is generated by IMS at the request of, and for the exclusive use of, the IMS client named on this report. The analysis of the test samples is performed by IMS. This report applies only to the samples taken at the time, place and location referenced in the report and received by IMS, and to the property and weather conditions existing at that time only. Please be aware, however, that property conditions, inspection findings and laboratory results can and do change over time relative to the original sampling due to changing conditions, the normal fluctuation of airborne mold, and many other factors. IMS does not furnish, and has no responsibility for, the inspector or inspection service that performs the inspection or collects the test samples. It is the responsibility of the end-user of this report to select a properly trained professional to conduct the inspection and collect appropriate samples for analysis and interpretation. Neither IMS, nor its affiliates, subsidiaries, suppliers, employees, agents, contractors and attorneys ("IMS related party") are able to make and do not make any determinations as to the safety or health condition of a property in this report. The client and client's customer are solely responsible for the use of, and any determinations made from, this report, and no IMS related party shall have any liability with respect to decisions or recommendations made or actions taken by either the client or the client's customer based on the report.

Samples analyzed by IMS are disposed the day that they are analyzed. Storage may be available for a fee with written request at the time the samples are submitted for analysis.

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IMS accepts no legal responsibility for the purposes for which the client uses the test results. IMS will not be held responsible for the improper selection of sampling devices even if we supply the device to the user. The user of the sampling device has the sole responsibility to select the proper sampler and sampling conditions to insure that a valid sample is taken for analysis. Additionally, neither this report nor IMS makes any express or implied warranty or guarantee regarding the inspection or sampling done by the inspector, the qualifications, training or sampling methodology used by the inspector performing the sampling and inspection reported herein, or the accuracy of any information provided to IMS serving as a basis for this report. The total liability of IMS related to or arising from this report to a client or any third party, whether under contract law, tort law, warranty or otherwise, shall be limited to direct damages not to exceed the fees actually received by IMS from the client for the report. The invalidity or unenforceability, in whole or in part, of any provision, term or condition herein shall not invalidate or otherwise affect the enforceability of the remainder of these provisions, terms and conditions. Client shall indemnify IMS and its officers, directors and employees and hold each of them harmless for any liability, expense or cost, including reasonable attorney's fees, incurred by reason of any third party claim in connection with IMS's services, the test result data or its use by client.

- End of IMS Legal Disclaimer -

Crawlspace Remediation

Crawlspace Remediation LLC or their inspector(s) maintain the premise that no legal or health claim has been presented in this report. This report is only for informational use only about the sampling taken the location(s) listed in this report at the date and time the sample(s) were taken. Crawlspace Remediation and their

representatives can only insure the findings of the laboratory so far as IMS can substantiate claims and findings.

Crawlspace Remediation LLC strongly recommends that all biological remediation be conducted following guidelines established by the Institute of Inspection Cleaning and Restoration (IICRC). Their document entitled *IICRC S520 Standard and Reference Guide for Professional Mold Remediation* outlines work practices and equipment to be utilized during the remediation procedure. Also follow recommendations outlined in the US EPA: *Mold Remediation in Schools and Commercial Buildings*, Publication EPA 402-K-01-001.

It is important to note that our findings relating to physical conditions observed during this assessment were not intended nor do they attempt to identify every possible source of contamination, mold or otherwise, in the structure. This inspector is neither insurer nor guarantor against water problems, mold problems or other defects in the subject property or any of its components.

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